DEFENSE HEALTH BOARD
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AUG 0 6 2009

DHB

MEMORANDUM FOR: ELLEN P. EMBREY, DEPUTY ASSISTANT SECRETARY OF DEFENSE (FHP&R), PERFORMING THE DUTIES OF THE ASSISTANT SECRETARY OF DEFENSE FOR HEALTH AFFAIRS

SUBJECT: Tactical Combat Casualty Care and Minimizing Preventable Fatalities in Combat

1. References:

a. Correspondence: LTC Russ Kotwal to Dr. Frank Butler, Chairman of the Committee on Tactical Combat Casualty Care, 75th Ranger Regiment Casualty Database Statistics, 9 June 2009.

b. Memorandum, Assistant Secretary of Defense for Health Affairs (ASD(HA)), Tactical Combat Casualty Care, 4 March 2009.

c. Kragh JF, Walters TJ, Baer DJ, et al. Survival with Emergency Tourniquet Use to Stop Bleeding in Major Limb Trauma. *Annals of Surgery* 2009; 249: 1-7

d. Presentation: Casualty Vignette from Operation Enduring Freedom, to the Committee on Tactical Combat Casualty Care, by Hospital Corpsman First Class (HM1) Jeremy K. Torrisi, Hotel Company, 2nd Marine Special Operations Battalions, 3 February 2009.

e. Presentation: Tactical Combat Casualty Care: Experiences of an Army Special Operations Unit in the Global War on Terrorism, to the Committee on Tactical Combat Casualty Care, by LTC Andy Pennardt, United States Army Special Operations Command, 3 February 2009.

f. Presentation: Tactical Combat Casualty Care: Defense Health Board Update, to the Committee on Tactical Combat Casualty Care, by Dr. Frank Butler, Chairman of the Committee on Tactical Combat Casualty Care, 3 February 2009.

g. Dr. Frank Butler, Chairman of the Committee on Tactical Combat Casualty Care, Tactical Combat Casualty Care Guidelines, February 2009.

h. Dr. Frank Butler, Chairman of the Committee on Tactical Combat Casualty Care, Tactical Combat Casualty Care Recommended Skill Sets by Provider Level, February 2009.

i. Presentation: Tactical Combat Casualty Care in the 75th Ranger Regiment, the Tactical Combat Casualty Care First Responder Conference, by LTC Russ Kotwal and MSG Harold Montgomery, 75th Rangers, 9-11 September 2008.

j. Kelly JF, Ritenour AE, McLaughlin DF, Bagg KA, Apodaca AN, Mallak CT, Pearse L, Lawnick MM, Champion HR, Wade CE, and Holcomb JB. Injury Severity and Causes of Death from Operation Iraqi Freedom and Operation Enduring Freedom: 2003-2004 Versus 2006. *The Journal of Trauma, Injury, Infection, and Critical Care* 2008;64(2 Suppl):S21-S27.

k. National Association of Emergency Medical Technicians. Pre-Hospital Trauma Life Support Manual. Sixth Edition, 2007.

l. Butler FK, Holcomb JB, Giebner SG, McSwain NE, Bagian J: Tactical Combat Casualty Care 2007: Evolving Concepts and Battlefield Experience. *Military Medicine* 2007;172(S):8.

m. Holcomb JB, McMullen NR, Pearse L, Caruso J, Wade CE, Oetjen-Gerdes L, Champion HR, Lawnick M, Farr W, Rodrigue S, and Butler FK. Causes of Death in U.S. Special Operations Forces in the Global War on Terrorsm: 2001-2004. *Annals of Surgery* 2007;245(6):986-991.

n. Holcomb JB, Stansbury LG, Champion HR, Wade C, and Bellamy RF. Understanding Combat Casualty Care Statistics. *The Journal of Trauma, Injury, Infection, and Critical Care* 2006;60(2):1-5.

o. Butler FK, Hagmann J, and Butler EG. Tactical Combat Casualty Care in Special Operations. *Military Medicine* 1996;161(Supp):1-16.

2. The Committee on Tactical Combat Casualty Care (CoTCCC), a Subpanel to the Defense Health Board (DHB) Trauma and Injury Subcommittee, performs a quarterly review of the Tactical Combat Casualty Care (TCCC) guidelines, the TCCC training curriculum, and the TCCC chapters in the American College of Surgeons-endorsed Pre-Hospital Trauma Life Support (PHTLS) Manual, and recommends updates for these documents as needed.

3. Following a brief on 3 February 2009, the CoTCCC recommended revisions to the TCCC guidelines. These changes were presented to the Trauma and Injury Subcommittee and unanimously approved. The recommendations were then presented by the Subcommittee at the DHB Core Board meeting on 9 March 2009 and subsequently deliberated and passed with unanimous vote by the Board in open session.

BACKGROUND

4. TCCC trauma management guidelines are used widely throughout the Department of Defense (DoD) and many allied nations. On 4 March 2009, the Assistant Secretary of Defense for Health Affairs recommended these guidelines to the Military Services as the basis for training their combat medical personnel to manage trauma in the tactical pre-hospital setting. This action was taken as a result of the multiple published reports of the success of TCCC in saving lives on the battlefields of Iraq and Afghanistan.

5. The U.S. Special Operations Command has required that all deploying combatants (not just medics and corpsmen) be trained in TCCC since 2005.

6. The current version of the TCCC Guidelines (February 2009), as well as the updated TCCC training curriculum, are posted on the Military Health System (MHS) website.

7. The recommended TCCC overview training for leaders is being accomplished in some units within the DoD, but is not widespread at present.

FINDINGS

8. The incidence of potentially preventable deaths among U.S. combat casualties in Iraq and Afghanistan may be as high as 20%. Since the large majority of combat casualty deaths occur prior to Medical Treatment Facility access, point of wounding care is of paramount importance.

9. Some units have trained all of their warriors in TCCC for years, so that critical lifesaving interventions can be provided within the often-narrow period during which casualty survival hangs in the balance. Training all members of these units to perform TCCC has been remarkably successful in eliminating preventable deaths from injuries sustained in combat.

10. Data are now mounting to support the widespread availability of TCCC as a dominant factor in reducing preventable deaths and in achieving a casualty Case Fatality Rate of just over 10%, a reduction of 36% since the Vietnam War. This has resulted in an estimated 1,000 battle-injured lives saved in the current conflict.

11. Data from the 75th Ranger Regiment and a second Army Special Operations unit have demonstrated that, despite a significant number of casualties and fatalities having been suffered, there were no potentially preventable deaths identified in these two units. Considering that both units have been heavily engaged in combat operations for the past seven years, this is a very significant achievement. These units have sustained a significant number of casualties and fatalities. Both units have a long-standing practice of teaching TCCC throughout their commands, so that their leadership understands TCCC and so that

the most critical life-saving interventions such as tourniquet use, hemostatic agents, and basic airway management, can be accomplished by every one of their unit members.

12. Greater awareness of the importance of TCCC on the part of unit commanders is currently being reported as a major factor in avoiding these preventable deaths. An understanding of the basic concepts of TCCC is critical for both supervisory medical personnel and combat leaders so that they will have appropriate expectations of their medics and corpsmen and fully grasp the key role that individual warfighter TCCC proficiency plays in maximizing survival after wounding.

13. Self and "buddy" aid has repeatedly been identified as essential to ensuring casualty survival. Lifesaving actions such as the application of a tourniquet often cannot be delayed until the arrival of a medic if the casualty is to survive.

14. In a recent Marine Corps Special Operations Command combat action, three lives were saved by TCCC interventions in a single casualty scenario. Other previous First Responder presentations have reported even larger numbers of lives saved by TCCC interventions in casualty scenarios.

CONCLUSION

15. The Subcommittee submits the recommendations below to the Assistant Secretary of Defense for Health Affairs, for consideration and endorsement to the Services as proposed actions that are expected to immediately improve the survival of combat casualties in units that have not previously implemented them.

RECOMMENDATIONS

16. After a thorough review of the current TCCC Guidelines, the Board advises the Department to pursue the following recommended revisions:

a. Train all deploying Service members who may become combatants on the battlefield in the most important life-saving techniques in TCCC, which are outlined in the "All Deploying Combatants" section of the recommended TCCC Skill Sets by Provider posted on the Military Health System web site in the TCCC training section.

b. Train all deploying medical department personnel in TCCC.

c. Provide an overview of TCCC to both officers and enlisted line leaders at entry, mid-level, and senior leadership training courses so that both supervisory medical personnel and unit combat leaders will understand the basic concepts of TCCC, and have appropriate expectations for the trauma management strategies that will be used by their medics and corpsmen. Battlefield trauma

care, as currently performed in the U.S. military, is customized for this environment and varies in some respects from pre-hospital trauma care as practiced in the civilian setting.

d. Place a strong emphasis on analyzing the additional first responder care information that should soon be available as a result of the distribution and use of the TCCC Casualty Card. This information should be captured in the Joint Theater Trauma Registry (JTTR), as well as at the organizational level, using the trauma registry methods pioneered by the JTTR and the 75th Ranger Regiment.

e. Establish a TCCC Combat Evaluation Program to analyze the feedback from combat medical personnel on the successes and shortcomings of current TCCC strategies and equipment at the U.S. Army Institute of Surgical Research (USAISR). This will allow for ongoing examination of tactical trauma care interventions and continued improvement in the care rendered to our wounded Service members.

f. On behalf of the Surgeon General of the Army, direct USAISR (the future Joint Center of Excellence for Battlefield Health Care and Trauma Research) review the above recommendation regarding a Combat Evaluation Research Program for TCCC interventions as outlined above, as well as provide resourcing requirements and a proposed implementation strategy.

17. The above recommendations were unanimously approved.

FOR THE DEFENSE HEALTH BOARD:

Gail Wilensky, PhD
President, Defense Health Board

John Holcomb, MD
Chair, Trauma and Injury Subcommittee

SUBJECT: Tactical Combat Casualty Care and Minimizing Preventable Fatalities in Combat - DHB 2009-05

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